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# The Fungus Among Us

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### Abstract

Species of fungi are some of the least researched organisms in the Amazonian rainforest. During a seven day observational study at the Inkaterra Field Station in the Department of Madre de Dios, Peru, different species of fungi and their substrates were recorded. Because resources for identification of fungi in Madre de Dios are lacking, field guides from Madre de Dios and Cristalino Natural Heritage Private Reserve in the Brazilian Amazon were used to distinguish and classify observed species. Decomposing wood in moist, dark areas was the primary substrate in which fungi were spotted. Over 30 species of fungi were observed. This study provides more photographic evidence of Peruvian fungi and details common locales in which they can be seen.

### Introduction

During our seven day trip to the Peruvian Amazon as part of the Conservation and Sustainability of Neotropical Ecosystems course, we conducted a citizen science observational study, in which fungi were recorded and identified. The purpose of this study was to catalogue fungi species, both those previously identified and any that were either unnamed or unidentified, and document the substrates upon which they grew. The kingdom Fungi is one of the least studied in the Amazon, and citizen science is important to advancing research and local data. After returning to Chicago, we reached out to a resource from the Western Montana Mycological Association for assistance with identification and possible additions of new species to the document.

### Methods and Research Design

Our seven day excursion at the Inkaterra Field Station in Madre de Dios, Peru, included daily treks throughout the Amazonian rainforest. During these day and night hikes, fungi specimen were spotted and photographed. We tried to get good images of the substrates upon which the fungi grew as well.

We utilized two field guides of neotropical fungi, one of fungi from the Cristalino Natural Heritage Private Reserve in Brazil and the other of fungi from the Cocha Cashu Biological Field Station in Manu National Park, Madre de Dios. We were able to reach out to a co-author of the latter source, Larry Evans, to help us identify species that we were unable to identify. Pictures were also uploaded to iNaturalist, but due to the limited information about neotropical fungi, our posts went unidentified.



Figure 1. *Lentinus cf. concavus*

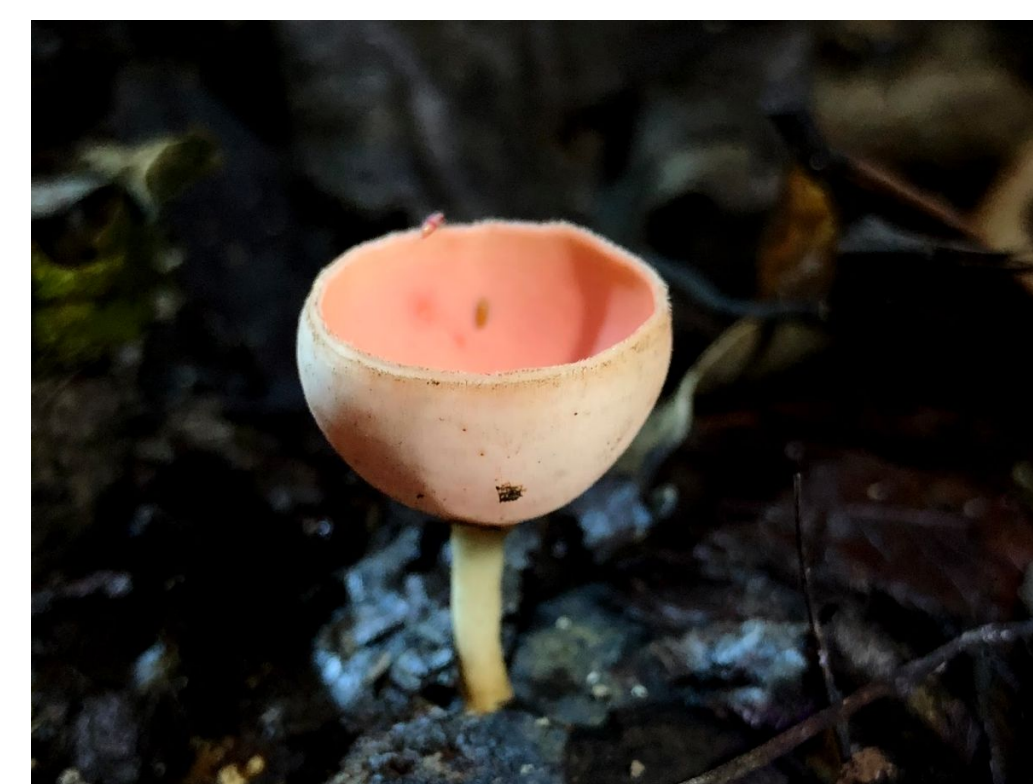


Figure 2. *Cookeina speciosa*

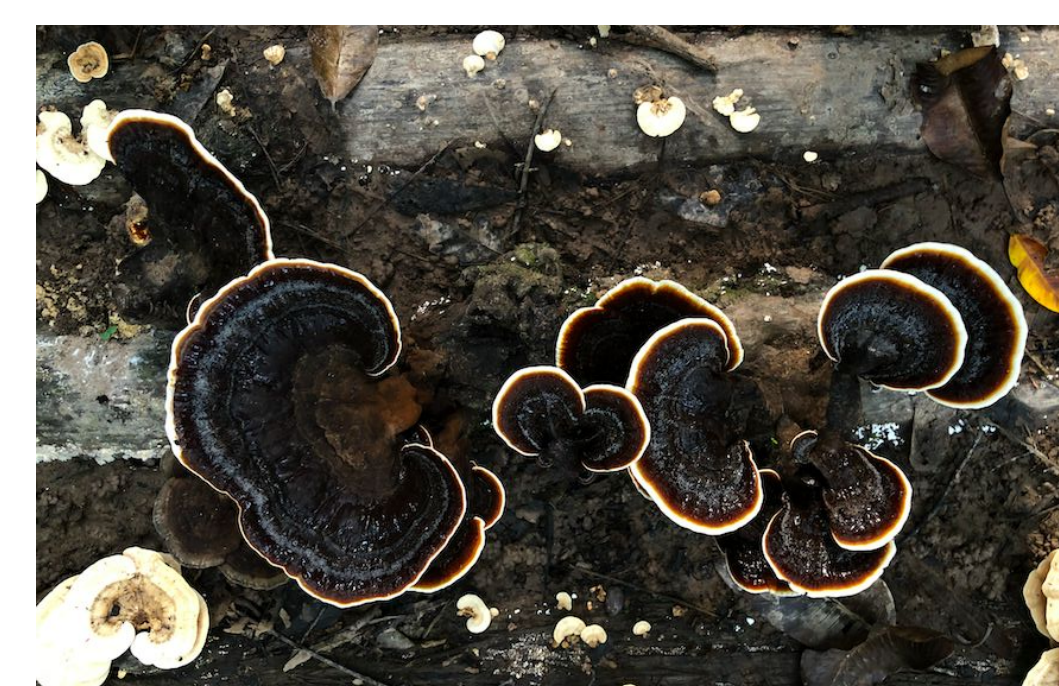


Figure 3. *Amauroderma sp.*

### Results

- *Amauroderma sp.*
- *Auricularia fuscusuccinea*
- *Auricularia sp.*
- *Auricularia delicata*
- *Cookeina speciosa*
- *Coprinellus acridophila*
- *Coprinellus coprinopsis*
- *Coprinellus disseminatus*
- *Cotylidia*
- *Dictyoploca rhyssophylla*
- *Entoloma sp.*
- *Favolus brasiliensis*
- *Gerronema*
- *Hexagonia variegata*
- *Hydropus cacavus*
- *Lentinus cf. concavus*
- *Lentinus crenitus*
- *Lepiota cf. lilacea*
- *Marasmius sp.*
- *Marasmius sp.*
- *Marasmius guyanensis cf.*
- *Mycenae aff. tessellata*
- *Oudemasiella canarii*
- *Parasola cf. plictilis*
- *Pluteus sp.*
- *Polyporus grammacephalus complex*
- *Polyporus guianensis*
- *Psathyrella sp.*
- *Rigidoporous sp.*
- *Stereum sp.*
- *Trametes sp.*
- *Tremellodenron cf. schweinitzii sp.*
- *Trogia*
- *Tubifera ferruginosa sp.*
- *Xeromphalina tenuipes*
- *Xylaria guianensis*
- *Xylaria multiplex*
- *Xylocoremium flabelliforme*



Figure 4. *Marasmius sp.*



Figure 5. *Xeromphalina tenuipes*

### Discussion & Conclusion

Over the course of our brief visit to Peru, we witnessed 30+ species of fungi on our excursions, a few of which we were unable to identify. Some of the fungi species could not be identified due to missing information from the photos. In these photos, the fungus' structure, color, or respective substrate could not be determined. The most common substrate was fallen wood. This could be indicative of the composition of detritus on the forest floor and/or the time it takes for fungi to establish. If the rate of leaf litter decomposition is faster than the decomposition rate of wood, perhaps leaf material is decomposed before fungi are able to develop.

The circumstances of our observational study should be noted, as it significantly impacted our results. Being part of a larger class, we often lacked sufficient time to stop and photograph fungi with the quality necessary to successfully identify species later. However, our photos from the slower-paced night walks are considerably higher in quality and these species were more easily identified. Additionally, the latter half of our identification process was completed during quarantine, which made checking for accuracy and consistency in identification difficult.

Although citizen science is important for increasing breadth of information, we were limited in our access to resources. We did not sufficiently familiarize ourselves with Peruvian fungi, and resources for doing so are incredibly limited. Being amateur student scientists, also made the identification of species difficult. Finally, we believe that having someone well versed in local fungi species would have aided in spotting and identifying species in the field.

Future studies of Amazonian fungi should work to increase the photographic evidence of species and descriptions of appearance, location, and substrate.

### Acknowledgements and References

Thank you to our field guides, Uriel and Rene, and our classmates for helping us spot fungi during our time in Peru. Special thanks to Larry Evans for helping us identify species we weren't able to identify ourselves, along with all the researchers who collaborated with The Field Museum to develop the Field Guides for Amazonian fungi.

Lodge, D. Jean, and Susanne Sourell. "Fungi of Cristalino Natural Heritage Reserve." *The Field Museum*, vol. 1, no. 1047, Oct. 2016, pp. 1–39.

Loayza, Patricia Alvarez, et al. "Fungi of Cocha Cashu." *The Field Museum*, vol. 1, no. 525, Feb. 2014, pp. 1–7.